UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P O Box 1450
Alexandria, Virginia 22313-1450
www uspto gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,324	07/18/2003	Feihong Chen	129250-000979/US	2523

32498 7590 10/10/2008
CAPITOL PATENT & TRADEMARK LAW FIRM, PLLC
P.O. BOX 1995
VIENNA, VA 22183

EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
10/10/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/621,324	CHEN ET AL.	
	Examiner	Art Unit	
	IAN N. MOORE	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _28 July 2008_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,3-5,7-9,11-13,15-17,19-21 and 23-29_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1, 3-5, 7-9, 11-13, 15-17, 19-21, 23-29_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/27/08 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 3-5, 7-9, 11-13, 15-17, 19-21, 23-29 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 1, 3-5, 7-9, 11-13, 15-17, 19-21, 23-24, the applicant argued that, "detecting a failure along an "ingress region" of a primary path. Kanakubo's simply not pertinent. Kanakubo disclosed fault occurs outside of the ingress region between the source router LSR-P 1 and the neighboring router LSR 2 and does not involve the neighboring router LSR 2…examiner interpretation of the term "ingress region"…is unreasonable, and inconsistent with plain meaning of the words and definition, e.g., the explaining provided by the applicant for the term "ingress region"…the re-routes traffic and uses a forwarding table are on one in the same…Kanakubo is simply not pertinent…Kanakubo router LSR-F 3 and LSR-P 1 are two separate and distinct devices…claim 13 recites a method involves receiving a failure message, and then re-routing traffic using a forwarding table…Kanakubo is not pertinent…Kanakubo table is used before receipt of the failure message…" in page 6-8.

In response to applicant's argument, the examiner respectfully disagrees with the argument above.

Applicant broadly claimed invention recites "detect a failure along an ingress region of a primary path".

1) Nowhere in the claimed limitation that recites exactly where the failure occurs and what consists of an ingress region. Thus, "in ingress region" can be any where in the network as long as the region is input/incoming region/area/paths of the network. Clearly, Kanakubo FIG. 1 discloses "input/incoming region/area/paths" as set forth in the rejection in the past and this instant rejection.

2) Although applicant does not recite any specific detail "detect a failure along an ingress region of a primary path", applicant repeatedly and incorrectly defining where the failure occurs and exactly what consists of an ingress region in the Kanakubo reference. Thus, the arguments on specific details in Kanakubo based on incorrect assuming is irrelevant and clearly an error.

3) Examiner interpretation is very reasonable since the claim invention is broad. Applicant detailed explanation and interpretation of the "ingress region" is not being claimed. Examiner can asserts Kanakubo in every part of the broad claimed invention. In fact, one skill in the ordinary art will clearly see that examiner assert the plain meaning of the words and definition of "ingress region" in Kanakubo FIG. 1.

In response to argument on a forwarding table, the claim inventing recites "the device **using** a forwarding table". Thus, the device can use any forwarding table regardless its location. Kanakubo's LSR-P receives fault notification which is used by a forwarding table of LSR-F and LSR-P that included IP and MPLS routing information as set forth below. Thus, it is clear that

the augments based on LSR-F and LSR-P being two different devices is irrelevant and clearly an error.

In response to argument on claim 13, as set forth in previous and this instant rejection, Kanakubo LSR-P only performs LSP switching to an alternate route base on routing table only after receiving the fault occurrence and indication.

Regarding claims 25-29, the applicant argued that, "...Kanakubo does not disclose "the ingress region comprises a link associated...a neighboring network device"... in page 8-9 of supplemental amendment.

In response to applicant's argument, the examiner respectfully disagrees with the argument above.

Kanakubo discloses detect a failure (see FIG. 2, LSR 1 receiving/detecting fault occurrence a1) along an ingress region of a primary path (see FIG. 1, receiving fault indication along input/ingress side/region (e.g. a region between LSRs 1, 2, 3, 6) of normal LSP; see page 2, paragraph 25-30), where the ingress region comprises a link associated with source network device (see FIG. 1, input/ingress side/region comprises a link/path (e.g. a link/path between LSR 1,2,3,6) associated with LSR-1; see page 2, paragraph 25-30), the link comprises either an outgoing link (see FIG. 1, a link/path is the transmit/output/outgoing link of Node LSP-1) <u>or</u> a link between the source network device and a neighboring network device (see FIG. 1, a link/path between LSR-1 and LSR-6; see page 2, paragraph 25-30)

Claim Objections

3. Claims 1, 3, 4, 5, 7, 8, 25-29 are objected to because of the following informalities:

Claim 1 recites the clause with the optional language "operable to" in line 1. In order to present the claim in a better form and to describe a positive or require steps/function to be performing (i.e. using the claim language that does not suggest or make optionally but required steps to be performed), applicant is suggested to revise the claim language such that the steps/functions, which follows "operable to", to be performed are required (not optional).

Claims 5, 25, and 28 are also objected for the same reason as set forth above in claim 1.

Claims 3, 4, 7, 8, 26, 27, and 29 are also objected since they are depended upon objected claims as set forth above.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-5, 7-9, 11-13, 15-17, 19-21, and 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanakubo (US 20030147346A1) in view of Skalecki (US 20040004937).

Regarding Claims 1, 9, and 17, Kanakubo discloses a network device processing a method (see FIG. 1, LSR-P 1) comprising:

means for detecting a failure (see FIG. 2, LSR 1 receiving/detecting fault occurrence a1) along an ingress region of a primary path (see FIG. 1, receiving fault indication along input/ingress side of normal LSP; see page 2, paragraph 25-30); and

means for re-routing traffic (see FIG. 1, LSR-P performing LSP switching) from the primary path associated with an original IP address (see FIG. 1, from a normal path corresponding to protection point IP address) to an alternate path (see FIG. 1, to bypass LSP; see page 2, paragraph 29-36) which includes the device using a forwarding table (see FIG. 3, using LSP fault indication retrieval table) that includes Internet Protocol (IP) (see FIG. 3, IP address of the protection point) and Multi-Protocol Label Switched (MPLS) routing information (see FIG. 3, entry type and entry) while associating the original IP address to the alternate path upon detection of the failure (see FIG. 3, LSP fault indication retrieval table associates IP address of protection point to the bypass path when receiving fault indication; see page 3, paragraph 39-53).

Kanakubo does not explicitly disclose "means for allowing traffic to travel along the primary path when the failure is no longer detected".

However, switching back from the alternating/protection path to the primary path after the failure is recovered is well known in the art as "revertive" switching or "fail-back" switching. In particular, Skalecki teaches a source network device (see FIG. 2-3, Node A) operable to:

means for detecting a failure along in ingress region of a primary path (see FIG. 2-3, detect a fault along in the input/ingress area/region of the working path W1), where the ingress region comprises a link (see FIG. 2-3, input/ingress area/region comprises a path/link/connection) associated with the source network device (see FIG. 2-3, associated/related with Node A), and the link comprises an outgoing link (see FIG. 2-3, link/path/connection

comprising outgoing/transmit link/line/connection) **or** a link between the source network device and a neighboring network device (see FIG. 2, 3, link/path/connection between Node A and Node K; see page 3-4, paragraph 34-43

means for re-routing traffic from the primary path to an alternate path (see FIG. 2, 3, switch the traffic form working path W1 to protection path P1; see page 3-4, paragraph 39-48);

means for allowing traffic to travel along the primary path when the failure is no longer detected (see FIG. 5, Switching Node switches the traffic from protecting path to working path when the restoring path message is received; see FIG. 6, S602-608; see page 2, paragraph 20-23; see page 4-5, paragraph 55-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "means for allowing traffic to travel along the primary path when the failure is no longer detected" as taught by Skalecki in the system of Kanakubo, so that it would provide the efficient use of the network resources; see Skalecki page 1, paragraph 66-67.

Regarding Claims 5, 13 and 21, Kanakubo discloses a network device processing a method (see FIG. 1, LSR-P 1) comprising:

means for receiving a failure message (see FIG. 2, LSR 1 receiving/detecting fault occurrence a1);

means for re-routing traffic, after receiving, (see FIG. 1, LSR-P performing LSP switching) from a primary path associated with an original IP address (see FIG. 1, from a normal LSP path corresponding to protection point IP address; see page 2, paragraph 25-30) to an alternate path (see FIG. 1, to bypass LSP; see page 2, paragraph 29-36) using a forwarding table

(see FIG. 3, using LSP fault indication retrieval table) that includes IP see FIG. 3, IP address of the protection point) and MPLS routing information (see FIG. 3, entry type and entry), said means for re-routing maintaining the original address (see FIG. 3, LSP fault indication retrieval table associates IP address of protection point to the bypass path; see page 3, paragraph 39-53), the alternate path comprising devices (see FIG. 1, LSR 4 and LSR 5) which maintain the same quality of service as the primary path (see page 1, paragraph 17; see page 3, paragraph 37, 54; see page 4, paragraph 60; bypass LSP comprising LSR 4 and LSR 5 and bypass LSP utilizes the same QoS policy as normal LSP since it is predefined/static LSP) and are not a part of the primary path except for the network device and a destination network device (see FIG. LSR 4 and 5 are not part of the normal LSP except LSR-P 1 and LSR-6; see page 2, paragraph 25-32).

Kanakubo does not explicitly disclose “allowing traffic to travel along the primary path when the failure is no longer detected”.

However, switching back from the alternating/protection path to the primary path after the failure is recovered is well known in the art as “revertive" switching or "fail-back" switching. In particular, Skalecki teaches a network device (see FIG. 2-3, Node A) operable to:

receive a failure message (see FIG. 2-3, receiving link down message I’ indicated of fault; see page 3, paragraph 39-40, 43)

re-routing traffic from the primary path to an alternate path (see FIG. 2, 3, switch the traffic form working path W1 to protection path P1; see page 3-4, paragraph 39-48);

allowing traffic to travel along the primary path when the failure is no longer detected (see FIG. 5, Switching Node switches the traffic from protecting path to working path when the

restoring path message is received; see FIG. 6, S602-608; see page 2, paragraph 20-23; see page 4-5, paragraph 55-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "means for allowing traffic to travel along the primary path when the failure is no longer detected" as taught by Skalecki in the system of Kanakubo, so that it would provide the efficient use of the network resources; see Skalecki page 1, paragraph 66-67.

Regarding Claims 25, 27 and 28, Kanakubo discloses a network device (see FIG. 1, LSR-P 1) comprising:

detect a failure (see FIG. 2, LSR 1 receiving/detecting fault occurrence a1) along an ingress region of a primary path (see FIG. 1, receiving fault indication along input/ingress side/region (e.g. a region between LSRs 1, 2, 3, 6) of normal LSP; see page 2, paragraph 25-30), where the ingress region comprises a link associated with source network device (see FIG. 1, input/ingress side/region comprises a link/path (e.g. a link/path between LSR 1,2,3,6) associated with LSR-1; see page 2, paragraph 25-30), the link comprises either an outgoing link (see FIG. 1, a link/path is the transmit/output/outgoing link of Node LSP-1) <u>or</u> a link between the source network device and a neighboring network device (see FIG. 1, a link/path between LSR-1 and LSR-6; see page 2, paragraph 25-30) and

re-routing traffic (see FIG. 1, LSR-P performing LSP switching) from the primary path associated with an original IP address (see FIG. 1, from a normal path corresponding to protection point IP address) to an alternate path (see FIG. 1, to bypass LSP; see page 2, paragraph 29-36) which includes the device using a forwarding table (see FIG. 3, using LSP fault

indication retrieval table) that includes Internet Protocol (IP) (see FIG. 3, IP address of the protection point) and Multi-Protocol Label Switched (MPLS) routing information (see FIG. 3, entry type and entry) while associating the original IP address to the alternate path upon detection of the failure (see FIG. 3, LSP fault indication retrieval table associates IP address of protection point to the bypass path when receiving fault indication; see page 3, paragraph 39-53).

Kanakubo does not explicitly disclose "allow traffic to travel along the primary path when the failure is no longer detected".

However, switching back from the alternating/protection path to the primary path after the failure is recovered is well known in the art as "revertive" switching or "fail-back" switching. In particular, Skalecki teaches Skalecki teaches a source network device (see FIG. 2-3, Node A) operable to:

detecting a failure along in ingress region of a primary path (see FIG. 2-3, detect a fault along in the input/ingress area/region of the working path W1), where the ingress region comprises a link (see FIG. 2-3, input/ingress area/region comprises a path/link/connection) associated with the source network device (see FIG. 2-3, associated/related with Node A), and the link comprises an outgoing link (see FIG. 2-3, link/path/connection comprising outgoing/transmit link/line/connection) **or** a link between the source network device and a neighboring network device (see FIG. 2, 3, link/path/connection between Node A and Node K; see page 3-4, paragraph 34-43

re-routing traffic from the primary path to an alternate path (see FIG. 2, 3, switch the traffic form working path W1 to protection path P1; see page 3-4, paragraph 39-48);

allowing traffic to travel along the primary path when the failure is no longer detected (see FIG. 5, Switching Node switches the traffic from protecting path to working path when the restoring path message is received; see FIG. 6, S602-608; see page 2, paragraph 20-23; see page 4-5, paragraph 55-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "allowing traffic to travel along the primary path when the failure is no longer detected" as taught by Skalecki in the system of Kanakubo, so that it would provide the efficient use of the network resources; see Skalecki page 1, paragraph 66-67.

Regarding Claims 3, 7, 11, 15, 19, 23, 26 and 29, Kanakubo discloses the device is a multi-protocol label switched (MPLS) device (see FIG. 1, MPLS label switch Router (LSR) 1) and the primary and alternate paths are label switched paths (LSPs) (see FIG. 1, normal and bypass Label Switch Paths (LSPs); see page 2, paragraph 25-26).

Regarding Claims 4, 12 and 20, Kanakubo discloses the failure is along a link between the device and the neighboring network device (see FIG. 1, fault occurrence a1 is along the LSP link between LSR-P 1 and LSR 6; see page 2, paragraph 25-29).

Regarding Claims 8, 16, and 24, Kanakubo discloses the quality of service is associated with bandwidth (see page 3, paragraph 37; the basic operation of QoS policy such as Diff-serv (differentiated service) class, <u>band</u> and service. Note in Diff-serv QoS/class policy band is the bandwidth (i.e. transmission data amount per unit time for each band/flow)).

6. Claims 1, 3-5, 7-9, 11-13, 15-17, 19-21, and 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu (US007167443B1) in view of Skalecki (US 20040004937).

Regarding Claims 1, 9 and 17, Dantu discloses a network device (see FIG. 3, node 300/340/344/348; see FIG. 4-5, node 400/500; or see FIG. 6, Node 600/616/620/624) processing a method (see FIG. 9-11, Method) comprising:

means for detecting (see FIG. 4, a combined system of processor 402, memory 404, and interface 412 performing examining/detecting; see col. 9, line 30 to col. 11, line 26; or see FIG. 5, a combined system of processor 502, memory 504, and interface 512 performing examining/detecting; see col. 12, line 39-64; see col. 13, line 30-40) a failure along an ingress region of a primary path (see FIG. 3, a failure occurs on a working path 332 between node 344 and 348; see FIG. 9, step 902; see FIG. 10, step 1002; see col. 9, line 30, line 63; see col. 17, line 10-20,45-55; see col. 10, line 25-36); and

means for re-routing traffic (see FIG. 4, a combined system of processor 402, memory 404, storage 406 performing switching to protecting path ring in node 400; see col. 9, line 30 to col. 11, line 26; or see FIG. 5, a combined system of processor 502, memory 504, and storage 506 performing switching to protecting path ring in node 500; see col. 12, line 39-64; see col. 13, line 30-40) from the primary path associated with an original IP address (see FIG. 7, IP address 712/08) to an alternate path (see FIG. 3,6, protection path 336; see FIG. 7, a label 716 with path route) which includes the device using a forwarding table that includes Internet Protocol (IP) and Multi-Protocol Label Switched (MPLS) routing information (see FIG. 3, Forwarding table 312 and/or routing table 308; see FIG. 4, a combined system of memory 404 (e.g. routing table 404 A and forwarding table 404B) and storage 406 (e.g. table formation 406A and protection switching 406B) in node 400 includes IP addresses corresponding to MPLS labels; or see FIG. 5, a combined system of memory 504 (e.g. forwarding table 504A) and storage 506 (e.g. forwarding

logic 506) in node 500 includes IP addresses corresponding to MPLS labels; see FIG. 10, S 1004, see FIG. 11, S 1104,1106; see col. 9, line 50 to col. 10, line 32; see col. 11, line 10-40; see col. 12, line 40-64; see col. 13, line 30-45; see col. 14, line 45-67; see col. 15, line 23-65; see col. 18, line 45-55; see col. 19, line 35-45) while associating the original IP address to the alternate path upon detection of the failure (see FIG. 4,5; see FIG. 10, S 1006,1008,1010; see FIG. 11, S 1108; see col. 9, line 50 to col. 10, line 32; see col. 11, line 10-40; see col. 12, line 40-64; see col. 13, line 30-45; see col. 14, line 45-67; see col. 15, line 23-65; see col. 18, line 45-55; see col. 19, line 35-46; switching IP address with its corresponding new label to the protection path when detecting a failure).

Dantu does not explicitly disclose "means for allowing traffic to travel along the primary path when the failure is no longer detected".

However, switching back from the alternating/protection path to the primary path after the failure is recovered is well known in the art as "revertive" switching or "fail-back" switching. In particular, Skalecki teaches Skalecki teaches a source network device (see FIG. 2-3, Node A) operable to:

means for detecting a failure along in ingress region of a primary path (see FIG. 2-3, detect a fault along in the input/ingress area/region of the working path W1), where the ingress region comprises a link (see FIG. 2-3, input/ingress area/region comprises a path/link/connection) associated with the source network device (see FIG. 2-3, associated/related with Node A), and the link comprises an outgoing link (see FIG. 2-3, link/path/connection comprising outgoing/transmit link/line/connection) **or** a link between the source network device

and a neighboring network device (see FIG. 2, 3, link/path/connection between Node A and Node K; see page 3-4, paragraph 34-43

means for re-routing traffic from the primary path to an alternate path (see FIG. 2, 3, switch the traffic form working path W1 to protection path P1; see page 3-4, paragraph 39-48);

means for allowing traffic to travel along the primary path when the failure is no longer detected (see FIG. 5, Switching Node switches the traffic from protecting path to working path when the restoring path message is received; see FIG. 6, S602-608; see page 2, paragraph 20-23; see page 4-5, paragraph 55-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "means for allowing traffic to travel along the primary path when the failure is no longer detected" as taught by Skalecki in the system of Dantu, so that it would provide the efficient use of the network resources; see Skalecki page 1, paragraph 66-67.

Regarding Claims 5, 13 and 21, Dantu discloses a network device (see FIG. 3, node 300/340/344/348; see FIG. 4-5, node 400/500; or see FIG. 6, Node 600/616/620/624) processing a method (see FIG. 9-11, Method) comprising:

means for receiving (see FIG. 4, Interface I/F 412; see FIG. 5, Interface I/F 512) a failure message (see FIG. 9, S 906, receiving a signal with error indication; see col. 17, line 11 to col. 18, line 11);

means for re-routing traffic (see FIG. 4, a combined system of processor 402, memory 404, storage 406 performing switching to protecting path ring in node 400; see col. 9, line 30 to col. 11, line 26; or see FIG. 5, a combined system of processor 502, memory 504, and storage 506 performing switching to protecting path ring in node 500; see col. 12, line 39-64; see col. 13,

line 30-40) from a primary path (see FIG. 3, a working path 332; see FIG. 9, step 902; see FIG. 10, step 1002; see col. 9, line 30, line 63; see col. 17, line 10-20,45-55; see col. 10, line 25-36) associated with an original IP address (see FIG. 7, IP address 712/08) to an alternate path (see FIG. 3,6, protection path 336; see FIG. 7, a label 716 with path route) using a forwarding table that includes IP and MPLS routing information (see FIG. 3, Forwarding table 312 and/or routing table 308; see FIG. 4, a combined system of memory 404 (e.g. routing table 404 A and forwarding table 404B) and storage 406 (e.g. table formation 406A and protection switching 406B) in node 400 includes IP addresses corresponding to MPLS labels; or see FIG. 5, a combined system of memory 504 (e.g. forwarding table 504A) and storage 506 (e.g. forwarding logic 506) in node 500 includes IP addresses corresponding to MPLS labels; see FIG. 10, S 1004, see FIG. 11, S 1104,1106; see col. 9, line 50 to col. 10, line 32; see col. 11, line 10-40; see col. 12, line 40-64; see col. 13, line 30-45; see col. 14, line 45-67; see col. 15, line 23-65; see col. 18, line 45-55; see col. 19, line 35-45), said means for re-routing maintaining the original address (see FIG. 4,5; see FIG. 10, S 1006,1008,1010; see FIG. 11, S 1108; see col. 9, line 50 to col. 10, line 32; see col. 11, line 10-40; see col. 12, line 40-64; see col. 13, line 30-45; see col. 14, line 45-67; see col. 15, line 23-65; see col. 18, line 45-55; see col. 19, line 35-46; switching IP address with its corresponding new label to the protection path), the alternate path comprising devices (see FIG. 3, intermediate nodes 348) which maintain the same quality of service as the primary path (see FIG. 10, S 1106,1008,1010; FIG. 11, S 1104-1108; see col. 9, line 50 to col. 10, line 32; see col. 11, line 10-40; see col. 12, line 40-64; see col. 13, line 30-45; see col. 14, line 45-67; see col. 15, line 23-65; see col. 18, line 45-55; see col. 19, line 35-46; assigning QoS level of IP packet in the working path to the same QoS level in the protection path while creating

a new label) and are not a part of the primary path except for the network device and a destination network device (see FIG. 3, intermediate node 348 are not part of the working path; see col. 8, line 60 to col. 9, line 62).

Dantu does not explicitly disclose “allow traffic to travel along the primary path when the failure is no longer detected”.

However, switching back from the alternating/protection path to the primary path after the failure is recovered is well known in the art as “revertive" switching or "fail-back" switching. In particular, Skalecki teaches Skalecki teaches a network device (see FIG. 2-3, Node A) operable to:

receive a failure message (see FIG. 2-3, receiving link down message I’ indicated of fault; see page 3, paragraph 39-40, 43)

re-routing traffic from the primary path to an alternate path (see FIG. 2, 3, switch the traffic form working path W1 to protection path P1; see page 3-4, paragraph 39-48);

allowing traffic to travel along the primary path when the failure is no longer detected (see FIG. 5, Switching Node switches the traffic from protecting path to working path when the restoring path message is received; see FIG. 6, S602-608; see page 2, paragraph 20-23; see page 4-5, paragraph 55-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “means for allowing traffic to travel along the primary path when the failure is no longer detected” as taught by Skalecki in the system of Dantu, so that it would provide the efficient use of the network resources; see Skalecki page 1, paragraph 66-67.

Regarding Claim 25, 27 and 28, Dantu discloses a network device (see FIG. 3, node 300/340/344/348; see FIG. 4-5, node 400/500; or see FIG. 6, Node 600/616/620/624) operable to:

detecting (see FIG. 4, a combined system of processor 402, memory 404, and interface 412 performing examining/detecting; see col. 9, line 30 to col. 11, line 26; or see FIG. 5, a combined system of processor 502, memory 504, and interface 512 performing examining/detecting; see col. 12, line 39-64; see col. 13, line 30-40) a failure along an ingress region of a primary path (see FIG. 3, a failure along a input/ingress region/section of the working path 332 between node 344 and 348 ; <u>or</u> see FIG. 6, a failure along a input/ingress region/section of the working path between node 600, 616, 620; see FIG. 9, step 902; see FIG. 10, step 1002; see col. 9, line 30, line 63; see col. 17, line 10-20,45-55; see col. 10, line 25-36), where the ingress region comprises a link associated with the source network device (see FIG. 3, input/ingress region/section comprises a path/link 332 associated with the node (e.g. Node 300); or see FIG. 6, input/ingress region/section comprises a path/link associated with the node 600; see col. 9, line 30, line 63; see col. 17, line 10-20,45-55; see col. 10, line 25-36), and the link comprises either an outgoing link (see FIG. 3, a path/link 332 comprising a transmit link/line to Node 340 or 348; or see FIG. 6, a path/link at node 600 comprising a transmit link/line to Node 616, 624; see col. 9, line 30, line 63; see col. 17, line 10-20,45-55; see col. 10, line 25-36;,) **<u>or</u>** a link between the source network device and a neighboring network device (see FIG. 3, a path/link between Node 300 and neighbor node 340/344/348; or see FIG. 3, a path/link between Node 600 and neighbor node 616, 624, 620; see col. 9, line 30, line 63; see col. 17, line 10-20,45-55; see col. 10, line 25-36); and

re-routing traffic (see FIG. 4, a combined system of processor 402, memory 404, storage 406 performing switching to protecting path ring in node 400; see col. 9, line 30 to col. 11, line 26; or see FIG. 5, a combined system of processor 502, memory 504, and storage 506 performing switching to protecting path ring in node 500; see col. 12, line 39-64; see col. 13, line 30-40) from the primary path associated with an original IP address (see FIG. 7, IP address 712/08) to an alternate path (see FIG. 3,6, protection path 336; see FIG. 7, a label 716 with path route) which includes the device using a forwarding table that includes Internet Protocol (IP) and Multi-Protocol Label Switched (MPLS) routing information (see FIG. 3, Forwarding table 312 and/or routing table 308; see FIG. 4, a combined system of memory 404 (e.g. routing table 404 A and forwarding table 404B) and storage 406 (e.g. table formation 406A and protection switching 406B) in node 400 includes IP addresses corresponding to MPLS labels; or see FIG. 5, a combined system of memory 504 (e.g. forwarding table 504A) and storage 506 (e.g. forwarding logic 506) in node 500 includes IP addresses corresponding to MPLS labels; see FIG. 10, S 1004, see FIG. 11, S 1104,1106; see col. 9, line 50 to col. 10, line 32; see col. 11, line 10-40; see col. 12, line 40-64; see col. 13, line 30-45; see col. 14, line 45-67; see col. 15, line 23-65; see col. 18, line 45-55; see col. 19, line 35-45) while associating the original IP address to the alternate path upon detection of the failure (see FIG. 4,5; see FIG. 10, S 1006,1008,1010; see FIG. 11, S 1108; see col. 9, line 50 to col. 10, line 32; see col. 11, line 10-40; see col. 12, line 40-64; see col. 13, line 30-45; see col. 14, line 45-67; see col. 15, line 23-65; see col. 18, line 45-55; see col. 19, line 35-46; switching IP address with its corresponding new label to the protection path when detecting a failure).

Dantu does not explicitly disclose "allowing traffic to travel along the primary path when the failure is no longer detected".

However, switching back from the alternating/protection path to the primary path after the failure is recovered is well known in the art as "revertive" switching or "fail-back" switching. In particular, Skalecki teaches Skalecki teaches a source network device (see FIG. 2-3, Node A) operable to:

detecting a failure along in ingress region of a primary path (see FIG. 2-3, detect a fault along in the input/ingress area/region of the working path W1), where the ingress region comprises a link (see FIG. 2-3, input/ingress area/region comprises a path/link/connection) associated with the source network device (see FIG. 2-3, associated/related with Node A), and the link comprises an outgoing link (see FIG. 2-3, link/path/connection comprising outgoing/transmit link/line/connection) **or** a link between the source network device and a neighboring network device (see FIG. 2, 3, link/path/connection between Node A and Node K; see page 3-4, paragraph 34-43

re-routing traffic from the primary path to an alternate path (see FIG. 2, 3, switch the traffic form working path W1 to protection path P1; see page 3-4, paragraph 39-48);

allowing traffic to travel along the primary path when the failure is no longer detected (see FIG. 5, Switching Node switches the traffic from protecting path to working path when the restoring path message is received; see FIG. 6, S602-608; see page 2, paragraph 20-23; see page 4-5, paragraph 55-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "means for allowing traffic to travel along the primary path

when the failure is no longer detected" as taught by Skalecki in the system of Dantu, so that it would provide the efficient use of the network resources; see Skalecki page 1, paragraph 66-67.

Regarding Claims 3,7, 11, 15, 19, 23, 26 and 29, Dantu discloses the device is a multi-protocol label switched (MPLS) device (see FIG. 3, Node 300 with MPSL switching capability; or see FIG. 6, 7, MPLS label switch Node 600; see col. 9, line 30-36; see col. 13, line 30-35; see col. 14, line 50-65; see col. 15, line 45-65) and the primary and alternate paths are label switched paths (LSPs) (see FIG. 1, working and protection paths are label Switch Paths; see col. 9, line 30-36; see col. 13, line 30-35; see col. 14, line 50-65; see col. 15, line 45-65).

Regarding Claims 4, 12 and 20, Dantu discloses the failure is at a neighboring device (see FIG. 3, a failure occurs at neighbor node 344/348; or see FIG. 6, a failure occurs at neighbor node 616,620,622) **or** along a link between the device and the neighboring network device (see FIG. 3, failure occurs between node 300 and node 344; or see FIG. 3, failure occurs between node 600 and node 616/620; see col. 9, line 30, line 63; see col. 17, line 10-20,45-55; see col. 10, line 25-36).

Regarding Claims 8, 16, and 24, Dantu discloses the quality of service is associated with bandwidth (see col. 16, line 1-36; see col. 19, line 35-46; QoS associated with bandwith or throughput or resources).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to IAN N. MOORE whose telephone number is (571)272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ian N. Moore
Primary Examiner
Art Unit 2416

/Ian N. Moore/
Primary Examiner, Art Unit 2416